THURSDAY, APRIL 4, 1912.

## MARINE LIFE IN NORTHERN SEAS.

*Campagne Arctique de 1907: Duc d'Orléans.*
*Etude Lithologique de Fonds recueillis dans les Parages de la Nouvelle-Zemble.* By Prof. J. Thoulet. Pp. 30+map. (1910.)
*Journal de Bord et Physique du Globe.* Pp. 101+10 plates+2 maps. (1911.)
*Echinodermes.* By J. A. Grieg. Pp. vi+40+1 plate+3 maps. (1910.)
*Mollusques et Brachiopodes.* By Ph. Dautzenberg and H. Fischer. Pp. v+25+map. (1910.)
*Faune des Mousses: Tardigrades.* By Ferd. Richters. Pp. 20+2 plates. (1911.)
*Microplankton des Mers de Barents et de Kara.* By Prof. Alph. Meunier. Pp. xviii+355+2 maps; also a volume of xxxvi plates. (1910.)
(Brussels: Charles Bulens, 75 rue Terre-Neuve.)

THE Arctic and Antarctic fauna and flora bid fair to be better known than those of the tropics. Successive expeditions are bringing us back abundant results from both polar regions, and amongst these the Duc d'Orléans's Arctic cruise of 1907 will form a noteworthy contribution to knowledge. The reports are being published in luxurious form by Bulens at Brussels, and the first six volumes of the series are now before us.

This, the second of the Duke's Arctic expeditions, took place in the ship *Belgica,* under the command of Captain A. de Gerlache, and was engaged in exploring the Barents Sea, the Kara Sea, and the Mourman Sea. The physical observations taken on board, including those on the state of the atmosphere, the sky, and the sea, are reported on by M. de Gerlache, who also records the higher animals (mammals and birds) that were observed.

The deposits collected from the bottom of these northern seas are discussed by Prof. J. Thoulet, and they seem to agree with other polar samples in being characterised by the very fine division of the mineral particles and the comparative scarcity of calcareous matter.

Only a few groups of the invertebrate animals from the sea bottom have as yet been reported upon. These include the Echinodermata, discussed by James A. Grieg, evidently a rich collection referred to twenty-five species, none of which, however, are described as new to science. This is not surprising, as, since the Austrian polar expedition under Payer and Weyprecht in 1872–74, the seas traversed by the *Belgica* have been explored by the Dutch *Willem Barents* expedition, the Russian *Yermak,* the successive Swedish expeditions of Nordenskiöld, the Danish *Dijmphna,* the Dutch *Varna,* and the Russian *Zarja*—possibly by others also. Eight of the twenty-five Echinoderm species are known to be circumpolar, and some of the others may prove to be so when we have fuller information as to their distribution to the north of the Pacific Ocean.

The report by MM. Ph. Dautzenberg and H. Fischer deals with thirty-eight species of Mollusca and the two Brachiopods, *Rhynchonella psittacea* and *Waldheimia cranium.* Twenty-seven species of Tardigrada were obtained from collections of mosses made at Novaya Zemblia, at Jan Mayen, Spitsbergen, Greenland, and the Franz-Joseph archipelago. We are told by Dr. Ferd. Richters that the best results were obtained when the mosses were thoroughly dried and sealed up in sterilised bags, from which the Tardigrada and other small game were months afterwards recovered, and revived by the addition of water. The microfauna of these dried mosses was found to contain Tardigrada, Protozoa, Rotifers, Oribatidæ, Oligochæta, Nematodes, and even Copepoda (*Moraria muscicola*). Richters describes for us, from the Tardigrada, two new species of Macrobiotus and three of Diphascon.

By far the most important, however, of these memoirs is that dealing with the Microplankton by Dr. Alph. Meunier, consisting of a large volume of text running to nearly four hundred pages and an atlas of thirty-six beautiful plates crowded with useful figures. This report, and especially perhaps the series of fine plates, will be of the greatest value to all planktologists working on these minute Protista. The groups of pelagic plants and animals dealt with under the convenient term "Microplankton" include Peridiniacea, Diatomacea, Microphyta of coloured snow (such as Diamylon and two new genera, Echinum and Folliculus), Cryptomonadacea, Silicoflagellata, Tintinnidæ, Infusoria, Radiolaria, Foraminifera, and some smaller groups of enigmatical organisms such as Halosphæra and Pterosperma, and quite a number of allied forms, for which no fewer than nine new genera have been created. Altogether twenty-five new genera and a large number of species previously unknown are described and figured in this report. All these planktonic forms, old and new, are the result of twenty-two vertical tow-net hauls and some horizontal ones taken in the Barents and Kara seas.

Dr. Meunier does not always follow the classification and nomenclature of other recent authorities, but whether we can agree with him or not on such points, at least we are grateful for his very beautiful drawings of the forms he is describing. In the Peridiniacea he describes a number of new species belonging to well-known

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genera, but nothing of a very novel or remarkable nature. A few new genera which are established for species of Peridinium scarcely seem to be sufficiently characterised, and may perhaps be accepted as subgenera.

New forms are added in every group of the Microplankton, but perhaps the most notable additions to knowledge are in "Groupe V—Organismes énigmatiques," where a large number of curiously shaped things are described and figured as being related to Halosphæra, Pterosperma, and their allies, but some of which one cannot help thinking may eventually prove not to be Protista at all, but the eggs and egg-coverings of some of the Metazoa.

The Tintinnidæ and allied Infusoria are very fully treated, and then a few Rhizopoda bring the first part of this report to an end; and the second part—nearly half of the volume—is found to be devoted wholly to Diatomacea. It is almost with a feeling of relief that one finds that not many new forms are added to this already enormous group, and that most of the space is devoted to a discussion of the occurrence and condition of known species, many of them common forms in our own British seas. In a final note to the Microplankton we are promised a supplement in tabular form dealing in detail with the distribution and abundance of the more common species when the remainder of the plankton has been reported on. We look forward with interest to the publication of the remaining volumes.

Altogether this is a notable series, upon the appearance of which the leader of the expedition, his collaborateurs, and the authors of the reports may alike be congratulated.

W. A. HERDMAN.

## LEFT-HANDEDNESS.

*Untersuchungen über Linkshändigkeit und die funktionellen Differenzen der Hirnhälften nebst einem Anhang: Ueber Linkshändigkeit in der deutschen Armee.* By Dr. Ewald Stier. Pp. iv+352+59. (Jena: Gustav Fischer, 1911.) Price 10 marks.

ONE of the most striking features that serve to distinguish man from all other creatures is his ability to learn to execute skilled movements of a much greater variety, complexity, and precision than are attainable by the rest of his order. But an even more interesting human trait is revealed in the fact that in the vast majority of mankind the right hand and the apparatus which controls its movements are more apt to acquire this skill and to develop its innate potentialities to a much higher degree than the left hand is capable of.

That in a small minority of people this state of affairs is reversed, and the left hand becomes more highly endowed with the inborn aptitude to learn and readiness to perform the more complex and finely adjusted movements, has ever provided food for reflection. For the condition of left-handedness interests not only the student of biology, but also those who concern themselves with educational policy, the devotees of sport, and the "man in the street"; and quite a considerable literature has grown up from the repeated discussions in which this interest has materialised, culminating in this characteristically Teutonic treatise or encyclopædia of all that bears upon the left-handed person, his anatomy, his mental and moral qualities and weaknesses.

It has been assumed as an axiom by almost everyone who has discussed these problems hitherto that the greater skill of the right hand, in the majority of mankind, necessarily implies a superiority of the left cerebral hemisphere, which controls the movements of the right hand—a superiority not only in the mere regulation of skilled motion, which is obvious, but also in its psychical potentialities, which has always seemed to me to be a gratuitous and wholly unjustifiable assumption.

The result of this confusion of ideas has been that most investigators have endeavoured to find some anatomical peculiarity in the left cerebral hemisphere, or some favourable circumstances in the arrangements for its nutrition which would explain this imaginary predominance. But most of such researches have led to a result which their authors regard as utterly enigmatic—that if there is any evidence of superiority of one cerebral hemisphere over the other it is more often the right, and not the left, that excels.

The most instructive illustration of this line of argument is the late Prof. Cunningham's Huxley memorial lecture, delivered in 1902, for he developed it in his usual lucid manner, and frankly admitted that he had reached conclusions precisely the reverse of what he had expected. But though he confessed that he had been baffled, his belief in the existence of the functional superiority of the left cerebrum was not lessened.

In the *British Medical Journal* of August 29, 1908, I protested against the whole assumption involved in this argument that the control of skilled movements of the right arm and the muscles of speech represent the sum total of the higher psychical manifestations of the human intellect. Dr. Stier does not seem to be aware of this criticism, for his treatise may be regarded as a great expansion and elaboration of the theme and the mode of treatment adopted by Prof. Cun-

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